NEW JERSEY

Surface Water Quality Standards

(N.J.A.C. 7:9B)

Stakeholder Meeting

April 15, 2015

Bureau of Environmental Analysis, Restoration and Standards

Department of Environmental Protection

Why we are here: Need to make some revisions to SWQS

- NJ SWQS expire in 2016
- CWA requires States to review & revise WQS once in 3 years (Triennial Review)
- EPA revised several water quality criteria – states have 3 years to conform to the federal criteria, otherwise provide justification for alternate criteria
- EPA must review and approve SWQS after consultation with USFWS and NMFS

Constituents of SWQS

- Designated uses
- Stream classifications
- Numeric and narrative criteria
- Policies
  - Antidegradation
  - Mixing zone
  - Variances
  - General and Technical

http://www.nj.gov/dep/rules/nj_env_law.html

Revisions Contemplated in 3 Areas

- **Bacterial Quality Criteria**
  - 2012: EPA updated Recreational Criteria per BEACH Act
- **Nutrient / Phosphorus Criteria**
  - Address Issues of concern from 2011 rule:
    - Numeric phosphorus criteria applicability in tidal freshwaters
    - Ensure continued protection of designated uses both in receiving and downstream waters when dischargers demonstrate that waters are not rendered unsuitable under current conditions
- **Ammonia Criteria**
  - 2013: EPA updated Ammonia criteria for freshwaters based on sensitive mussels and snails

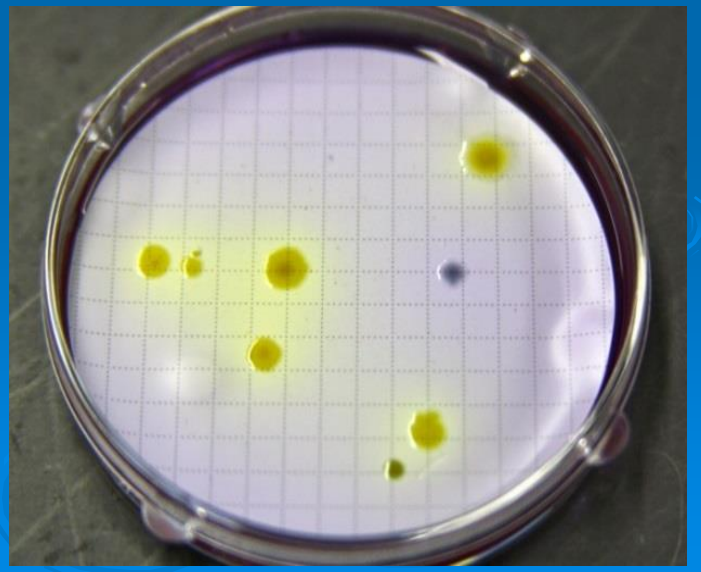
Recreational Water Quality Criteria

EPA Recreational Water Quality Criteria (2012 RWQC)

- Relied on *National Epidemiological and Environmental Assessment of Recreational Water* (NEEAR) studies conducted from 2003 to 2009
- Criteria would apply to all waters, including inland / non-beach waters

2012 RWQC

- **Two sets of numeric concentration thresholds**
  - 30-Day Geometric Mean (Rolling or Static)
  - Statistical Threshold Value (STV): 90th percentile of the water quality distribution
- **Two bacterial indicators**
  - Enterococci - fresh and marine
  - E. Coli – fresh
- Applicability
  - Seasonal / Year round



2012 RWQC Requirements

- **Magnitude**: Use same illness rate for geometric means and STVs for both freshwaters and coastal waters/beaches
- **Duration and Frequency**: Not greater than 10% excursion frequency of selected STV magnitude in the same 30 day period

2012 RWQC: Beach Notification

Beach action value (BAV)

- New EPA requirement
- Used for beach notification
- Will be included in the amended DOH Recreational Bathing Rule
- For 2015 the new BAV will be implemented by NJDEP through County Environmental Health Act (CEHA) contracts with coastal counties participating in the CCMP

Comparison of NJ and EPA Recreational Criteria Marine Waters (Estuarine and Coastal Waters)

Enterococcus*	NJ Current 19 illness / 1000	EPA Option 1 36 illness / 1000	EPA Option 2 32 illness / 1000
Geometric mean	35/100 ml	35/100 ml	30/100 ml
STV	N/A	130/100 ml	110/100 ml
SSM (Single Sample Maximum) - beach notification/ closure only	104/100 ml	N/A	
Sampling frequency	Minimum 5 in 30 days	Not specified	
Averaging period	Seasonal geometric mean	30 days: static or rolling	
Applicability	Year round	Seasonal or Year round	

* **2012 EPA recreational criteria allow Enterococcus to be used as indicator organism in both fresh and marine waters; however, the same illness rates should be used in fresh and marine waters**

Comparison of NJ and EPA Recreational criteria Freshwaters – (Rivers, streams and lakes)

E. coli	NJ Current 8 illness / 1000	EPA Option 1 36 illness / 1000	EPA Option 2 32 illness / 1000
Geometric mean	126/100 ml	126/100 ml	100/100 ml
STV	N/A	410/100 ml	320/100 ml
SSM (Single Sample Maximum) - beach notification/ closure only	235/100 ml	N/A	
Sampling frequency	Minimum 5 in 30 days	Not specified	
Averaging period	Seasonal geometric mean	30 days	
Applicability	Year round	Seasonal or Year round	

Shared Waters – What other states are planning

- Some waters in the harbor and Delaware River are downgraded based on UAA that is more than 30 years old and are required to be re-evaluated
- New York
  - Proposed rules to upgrade uses to primary contact levels (although use may not be met due to other factors)
  - Planning to:
    - Propose EPA's 2012 recreational criteria
    - Use more stringent "enterococcus" criteria for all waters
    - Rolling 30-day Geomean
    - Apply criteria seasonally

Shared Waters – What other states are planning

- Pennsylvania - Plan on using
  - E. Coli in all fresh waters and defer to DRBC in Delaware River
  - Rolling 30-day Geomean
  - Apply criteria seasonally

- DRBC –expects to proceed following member state actions in their waters

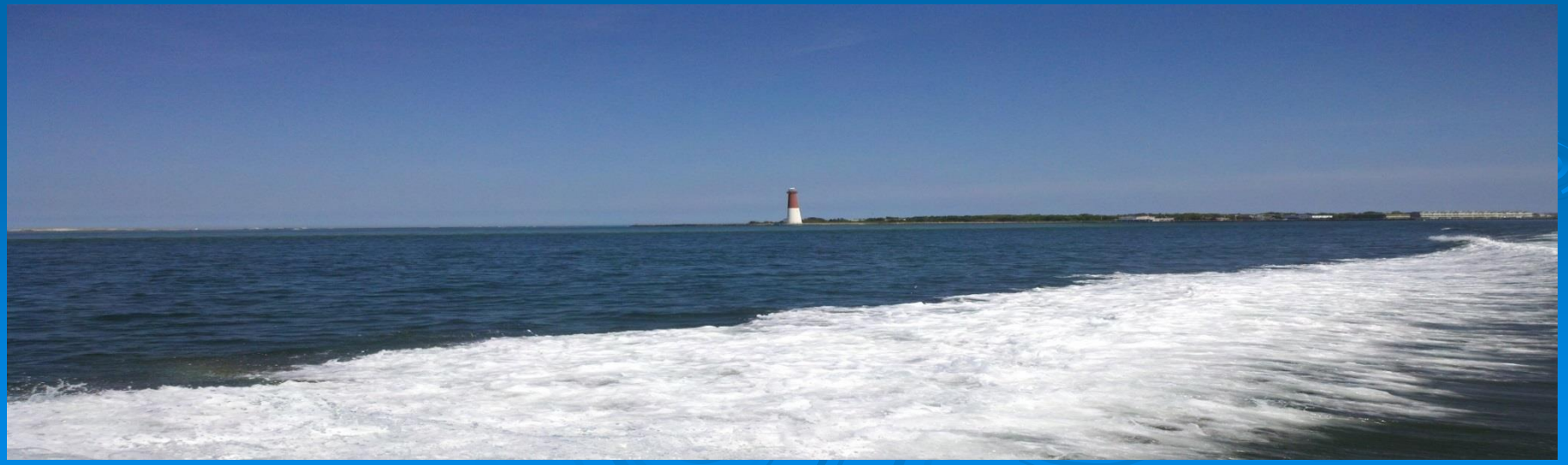
Factors to Consider for Implementation

- Impacts to NJ dischargers
  - Shared Waters: NY, PA proposing seasonal
  - Some waters are “downgraded”
- Translation of Criteria into Permit Limits
  - EPA guidance has not yet been released on calculating limits based on STV
  - Need for sufficient data
  - The Department will consider a compliance schedule of up to three years

QUESTIONS

Contemplated Discussion Topics

- Illness rate: 36 / 32 per 1000 people exposed
- Application of criteria seasonally or year round
- Enterococci criteria for all waters



Nutrients / Phosphorus Criteria

Existing Nutrient Criteria

Narrative (N.J.A.C. 7:9B-1.14(d)4)

- Except as due to natural conditions, nutrients shall not be allowed in concentrations that render the waters unsuitable for the existing or designated uses due to:
  - Objectionable algal densities
  - Nuisance aquatic vegetation
  - Diurnal fluctuations in DO or pH indicative of excessive photosynthetic activity
  - Detrimental changes to the composition of aquatic ecosystems
  - Other indicators of use impairment caused by nutrients
- Department may develop watershed-specific translators or site-specific criteria through a TMDL

Existing Phosphorus Numeric Criteria

- **Non Tidal Streams**: Concentrations of **total P shall not exceed 0.1 in any stream**, unless watershed-specific translators are established pursuant to N.J.A.C. 7:9B-1.5(g)2 or if the Department determines that concentrations do not render the waters unsuitable in accordance with (d)4i above.
- **Lakes**: Concentrations of **total P shall not exceed 0.05 in any lake, pond or reservoir, or in a tributary at the point where it enters such bodies of water**, unless watershed-specific translators are established pursuant to N.J.A.C. 7:9B-1.5(g)2 or if the Department determines that concentrations do not render the waters unsuitable in accordance with (d)4i above.

Site-specific Phosphorus Evaluation for NJPDES Permits

"Technical Manual for Phosphorus Evaluations for NJPDES Discharge to Surface Water Permits"

(available at www.state.nj.us/dep/dwq/techman.htm)

- Contains procedures for a discharger to demonstrate that phosphorus does not render waters unsuitable for designated uses
- Can not be applied to effective phosphorus limits
- Not applicable to waters with established TMDLs or site specific criteria

Technical Manual for Phosphorus Evaluations

for NJPDES Discharge to SW permits

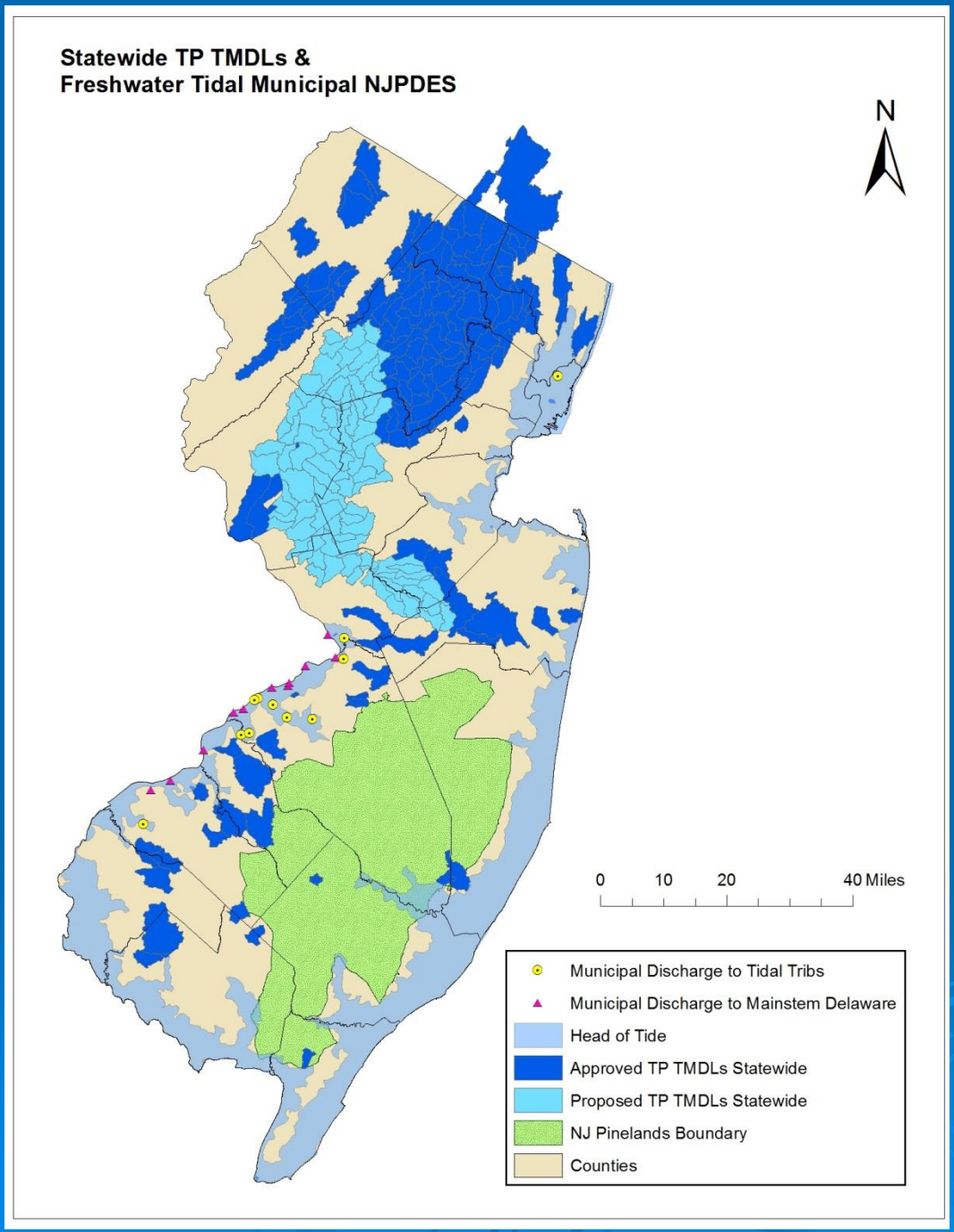
Water quality evaluation demonstrates waters are not rendered unsuitable

Pass – No new limits imposed

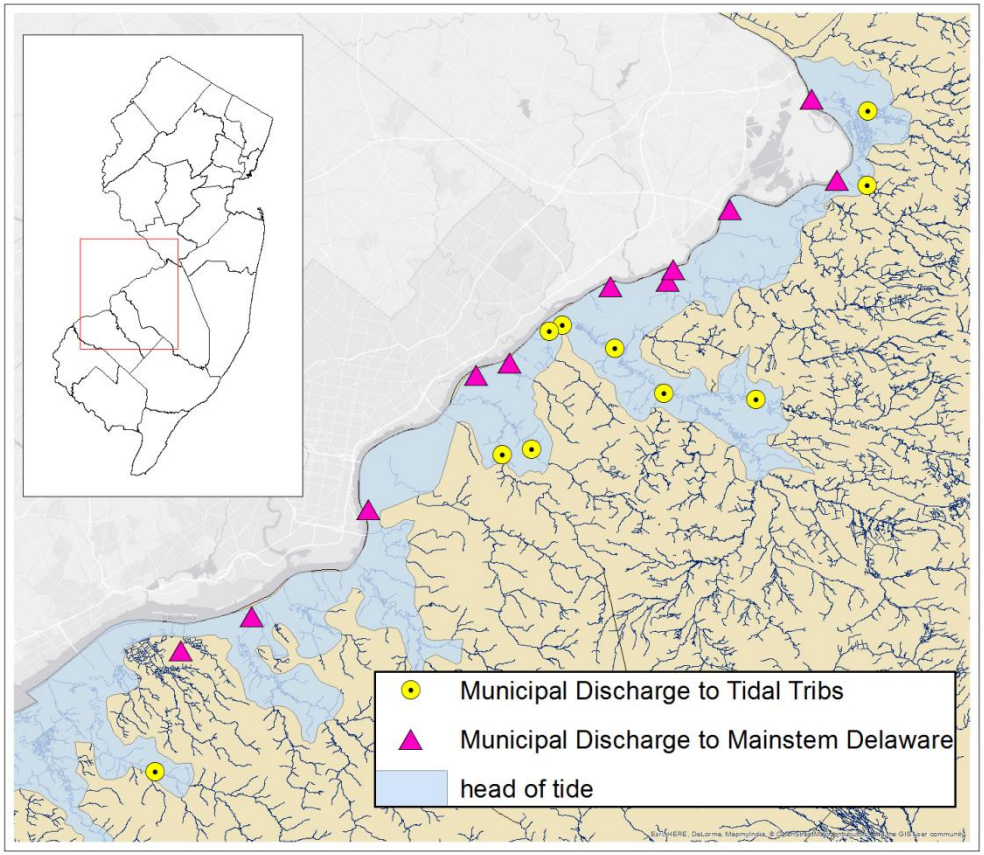
Fail – Must meet WQBEL based on 0.1 mg/L

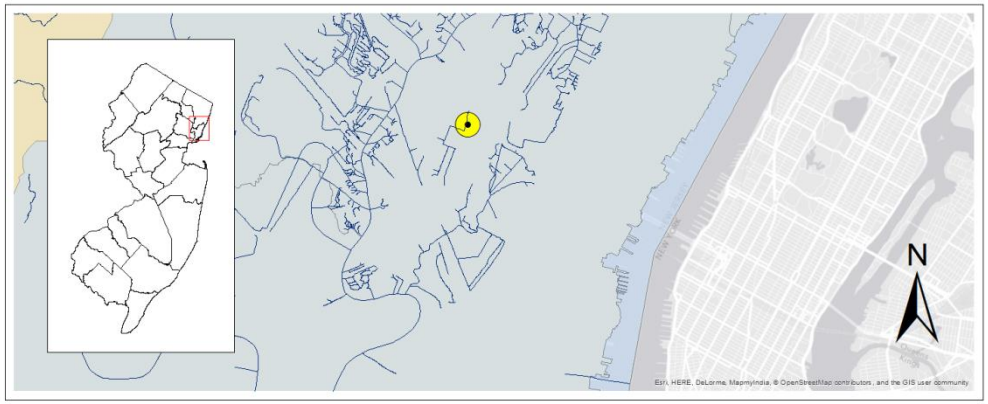
Nutrient Standards Require to Ensure

1. Protection for tidal freshwaters
2. Protection of designated uses both in receiving and downstream waters when dischargers demonstrate that waters are not rendered unsuitable


Statewide TP TMDLs &
Freshwater Tidal Municipal NJPDES
N
0
10
20
40 Miles
Municipal Discharge to Tidal Tribs
Municipal Discharge to Mainstem Delaware
Head of Tide
Approved TP TMDLs Statewide
Proposed TP TMDLs Statewide
NJ Pinelands Boundary
Counties

Existing NJPDES Municipals that Discharge to Tidal Freshwaters





Implementation in Tidal Freshwater

Issue

- DRBC has authority for phosphorus criteria in the main stem
- Effectiveness of imposing phosphorus criteria on dischargers in tidal freshwater while main stem lacks criteria

Possible Response

Postpone implementation for NJPDES dischargers in the tidally influenced FW2 waters, until:

- Criteria are developed by the NJDEP / DRBC
- Site-specific criteria are developed

Protection of Receiving and Downstream Waters Implementation Considerations

- Alternate site specific criteria developed through water quality study - allowed in current rule as general policy statement, not related to demonstration
- Implementation Strategy to ensure continued protection of designated uses both in receiving and downstream waters when dischargers demonstrate that waters are not rendered unsuitable under current conditions
  - Effectuated through permit limits pending site specific criteria or TMDL

Questions

Contemplated topics:

- Implementation strategy for NJPDES on tidal freshwater
- Options to ensure continued protection of designated used both in receiving and downstream waters when dischargers demonstrate that waters are not rendered unsuitable.


Ammonia Criteria

Existing NJ Ammonia Criteria

- Adopted criteria in 2002:
  - FW2-TP/TM
  - FW2-NT – Winter and Summer
  - PL
  - SE
  - SC
- FW and PL criteria dependent on pH and temperature
- Criteria calculated using NJ-specific species

2013 EPA Ammonia Freshwater Criteria – What's New

- Most sensitive species - unionid mussels and gill-breathing snails (more sensitive than those used for NJ criteria)
- Year-round criteria – Not seasonal
- No specific criteria for Trout Waters
- Generally more stringent than existing NJ criteria
- Does not apply at pH levels <6.5 and >9 (pH criteria in NJ PL waters is 3.5 – 5.5)

Comparison of Ammonia Criteria

(Total mg/L at 20º C and pH 7)

NJ Vs EPA

Stream Classification	Acute Criteria		Chronic Criteria	
	Existing NJ	EPA Recommended	Existing NJ	EPA Recommended
FW2-TP & TM	22.3	17	5.72	1.9*
FW2-NT	25 (summer) 28.8 (winter)		6.71 (summer) 7.46 (winter)	

* Not to exceed 2.5 times the CCC (4.8 mg TAN/L at pH 7 and 20°C) as a 4-day average within 30 days.

Shared Waters – What other states are planning

- PA and NY – Plan to propose/adopt EPA's criteria as-is in 2016
  - Use tables with equation in background
- DRBC – waiting to see what is adopted in member state's waters

Implementation Options

- Develop site specific criteria
- Demonstrate target species are not existing use
  - If present since 1975 – it is an existing use
  - Larvae are transported by host fish - Mussels are capable of colonizing new territory
  - Mussels need to be surveyed every 2-3 years
- Use Attainability Analysis (UAA)
- Variance

Permitting Implications

- Most dischargers would be affected
- Treating for NH_3 would increase NO_3 in discharge and receiving water
- Significant upgrade costs required, particularly for chronic criteria

Questions / Next Steps